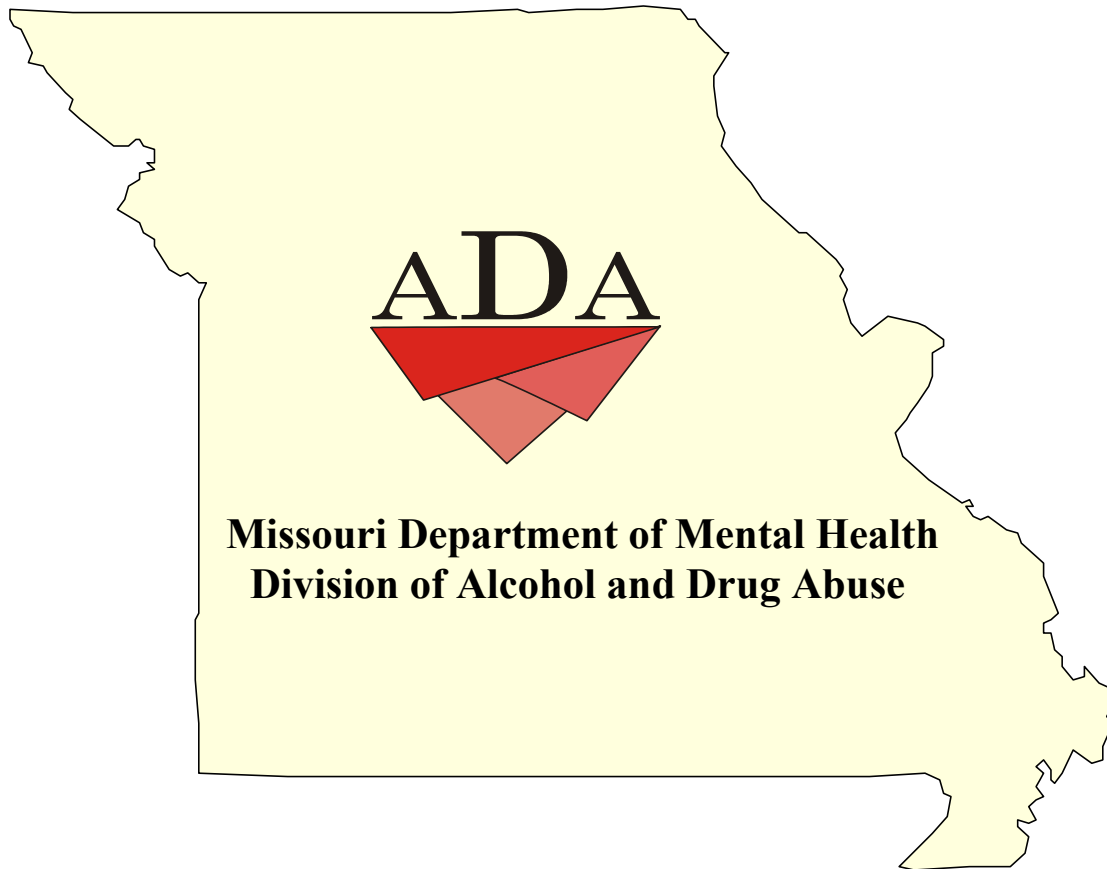


State of Missouri Treatment Needs Assessment Project



Integrating Population Estimates of Substance Abuse Treatment Need in Missouri: 2003 Update

September 2003

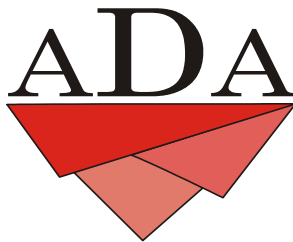
State of Missouri

State Treatment Needs Assessment Project

Integrating Population Estimates of Substance Abuse Treatment Need in Missouri: 2003 Update

FINAL REPORT

Prepared in Collaboration with



Missouri Department of Mental Health
Division of Alcohol and Drug Abuse

Prepared by



BeLinda J. Weimer
Sean Candrilli
Larry Kroutil
Valley Rachal

September 2003

ACKNOWLEDGMENTS

This report was developed jointly by the Missouri Department of Mental Health, Division of Alcohol and Drug Abuse (ADA) and RTI International* as part of Missouri's second State Treatment Needs Assessment Project entitled State Demand and Needs Assessment Studies: Alcohol and Other Drugs. This report was supported by the Center for Substance Abuse Treatment, Substance Abuse and Mental Health Services Administration, under Grant Number 5H79TI1229.

The authors wish to acknowledge the support, encouragement, specific inputs, and overall directions provided by ADA staff members Donna Nelson, Randy Smith, Andrew Homer, Ph.D., Christie Lundy, Ph.D., and Barth Ihenacho. The authors also would like to acknowledge the contributions of the following individuals:

- Donald Akin, RTI, Sampling Statistician;
- Linda Fonville, RTI, Document Preparation Specialist;

Randy Smith served as the Missouri project director, Valley Rachal served as the RTI project director, and Nita Fleagle served as the CSAT project officer.

For further information about the contents of this report, contact:

Missouri Department of Mental Health
Division of Alcohol and Drug Abuse

1706 E. Elm

P.O. Box 687

Jefferson City, MO 65102

Telephone: (573) 751-4942

TT: (573) 751-4942

Fax: (573) 751-7814

Web Site: <http://www.dmh.missouri.gov/ada/index.html>

September 2003

* RTI International is a trade name of Research Triangle Institute.

Table of Contents

Chapter	Page
Acknowledgments.....	ii
1. Introduction and Background	1-1
1.1 Overview of Missouri Demand and Needs Assessment Studies	1-2
1.2 Missouri’s Current Substance Abuse Treatment System.....	1-2
1.3 Rationale for Integrative Approach	1-3
1.4 Study Overview and Report Organization.....	1-7
2. Overview of STNAP Data Integration Methods.....	2-1
2.1 Summary of Data Integration Steps.....	2-2
2.2 Definitions of Population Groups	2-2
2.3 Updating Mutually Exclusive and Special Population Groups for the 2003 Integrative Study	2-3
2.4 Determining Prevalence Estimates for the 2003 Study	2-6
3. Overview of Missouri Automated Integration Model (AIM).....	3-1
3.1 Use of the Missouri AIM as a Service Planning Tool	3-1
3.2 Summary of the AIM Design.....	3-1
3.3 Input Data.....	3-1
3.4 Producing Estimates of Treatment Need	3-2
4. Highlights of Results.....	4-1
4.1 Adult and Adolescent State, Regional, and Service Area Population Estimates	4-1
4.2 Statewide Estimates of Need, Demand, and Eligibility for Treatment.....	4-3
4.3 Regional and Service Area Estimates of Treatment Need for Mutually Exclusive Populations	4-5
4.4 Statewide, Regional, and Service Area Estimates of Treatment Need for Special Populations.....	4-6
4.5 Treatment System Capacity, Utilization, and Unmet Demand.....	4-10
4.6 Summary	4-10
References.....	R-1
Appendix A Missouri Automated Integration Model Output Tables.....	A-1

List of Tables

Number		Page
2.1	Populations Covered and Not Covered in Missouri's STNAPs	2-1
2.2	Summary of Data Integration Steps.....	2-2
2.3	Sources of Substance Abuse Prevalence Data for Mutually Exclusive Population Groups	2-6
2.4	Sources of Substance Abuse Prevention Data for Special Populations.....	2-7
2.5	Population Groups, Sources of Data, and Estimated Prevalence of Need for Substance Abuse Services.....	2-8
4.1	Tables Included in the Missouri Automated Integration Model.....	4-2
4.2	Missouri Mutually Exclusive Population Groups by Region/Service Area	4-3
4.3	Missouri Statewide Totals, Adult Populations By Age, Gender, and Race/Ethnicity.....	4-4
4.4	Missouri Estimates of Statewide Treatment Need, Demand, and Eligibility by Mutually Exclusive Population Groups.....	4-4
4.5	Missouri Estimates of Adult Treatment Need, Demand, and Eligibility by Mutually Exclusive Population Groups by Region and Service Area.....	4-6
4.6	Missouri Estimates of Treatment Need and Demand Among Special Population Groups	4-7
4.7	Missouri Assessment of State Treatment System's Capacity and Utilization.....	4-11

List of Figures

Number		Page
1.1	County Composition for Each Planning Region and Service Area	1-4

1. Introduction and Background

The integration approach synthesizes information from many sources on substance abuse service needs for multiple populations to form a comprehensive assessment of treatment need. To do this the adult population is divided into mutually exclusive (nonoverlapping) categories based on locations where individuals reside during any given moment in time. Adolescent and special populations, or high-risk subgroups, are also identified. Using rates of treatment need derived from various sources and applying them to the mutually exclusive and special population bases, estimates of the number of adolescents and adults by group in need of treatment services are calculated.

This study was designed to

- update Missouri's first integration study (Sanchez, Kuo, Akin, Moore, & Bray, 1999) conducted as part of the State's first State Treatment Needs Assessment Program (STNAP),
- incorporate information from additional studies conducted since the first integration study was completed, and
- incorporate new Census data and research from other sources.

The Missouri Automated Integration Model is an interactive tool designed to assist ADA staff with substance abuse treatment planning and resource allocation.

The purpose of this report is twofold. First, it provides the background information and appropriate introductory materials for the updated study. The heart of the updated study is an interactive, automated spreadsheet model called the Missouri Automated Integration Model (AIM). Second, this report presents results from the Missouri AIM.

The Missouri AIM provides an organizing framework and automated mechanism to integrate the best available (usually research or census-based) data from multiple sources for providing treatment needs assessment-related information for important geographic entities in Missouri. This tool will allow personnel in the Missouri Department of Mental Health, Division of Alcohol and Drug Abuse (ADA) to assess how changes in service area, regional, and statewide demographic profiles and rate of substance abuse treatment need affect costs and available services. The tool is also designed to allow ADA to update these estimates as new data become available or to simulate various possible scenarios based on assumed data.

1.1 Overview of Missouri Demand and Needs Assessment Studies

STNAP was designed to assist States in developing data collection and analysis infrastructures for surveillance, planning, budgeting, and policy development.

In an effort to obtain information on substance use problems and the need for treatment or intervention services among various populations, CSAT made funding available for States to conduct studies of the prevalence of substance abuse in their communities. In 1992, CSAT awarded the first round of 3-year STNAP contracts to 13 States. Since then, CSAT has issued at least one contract to each of the 50 States, the District of Columbia, Puerto Rico, and the Virgin Islands. The STNAP was designed to assist States in developing data collection and analysis infrastructures for surveillance, planning, budgeting, and policy development.

In 1995, the Missouri ADA received funding for its first STNAP. The STNAP consisted of five complementary studies that included both primary data collection and secondary analysis of existing data. The cornerstone of this STNAP was a household telephone survey designed to examine the substance use and need for treatment among the adult household population (Kroutil, Guess, Condelli, Bonito, Akin, Walker, & Bray, 1998). In addition, surveys were conducted with adult and juvenile arrestees (Bonito, Kuo, & Bray, 1999a; Bonito, Kuo, Moore, & Bray, 1999b).

In 1999, the State of Missouri secured funding for a second STNAP. The second STNAP encompasses the following three studies, the last of which is the subject of this report:

This study merges substance abuse-related information from both of Missouri's STNAP family of studies to create a framework useful for service planning and resource allocation.

- Substance Use and Need for Treatment Among the Missouri Household Population: 2001/2002 (Weimer, Green, & Rachal, 2003),
- Substance Abuse and Need for Treatment Among Missouri Jail Inmates: 2001 (O'Neil, Krebs, Koetse, Forti, & Rachal, 2003), and
- Integrating Population Estimates of Substance Abuse Treatment Need in Missouri: 2003 Update.

Together, the studies from both of Missouri's STNAPs provide an important knowledge base to improve efforts to meet its substance abuse and treatment needs, as well as to allocate resources within the State.

1.2 Missouri's Current Substance Abuse Treatment System

The substance abuse treatment system in Missouri is administered through the Department of Mental Health and its Division of Alcohol and Drug Abuse (ADA). Within the State, agencies are *certified* to operate a treatment facility, but do not necessarily obtain funding from

the division to provide services. A portion of the certified agencies also are *contracted* by the State to provide services and receive funding to do so. The division provides a network of treatment services through these contractors and maintains a data system only for those receiving funds from ADA (i.e., contracted). All those contracted with the State also must meet the State certification standards. In September 2003, there were 91 certified treatment entities in Missouri's five planning regions and 20 service areas. See **Figure 1.1** for county composition of each planning region and service area.

Providers can deliver a myriad of services, which include detoxification, residential rehabilitation, outpatient rehabilitation, recovery houses, and opioid treatment. Some providers also deliver treatment for problem or pathological gambling. Several providers are contracted to offer services to a special population, such as women and adolescents. These programs offer tailored services for these populations and their families because they often have special needs.

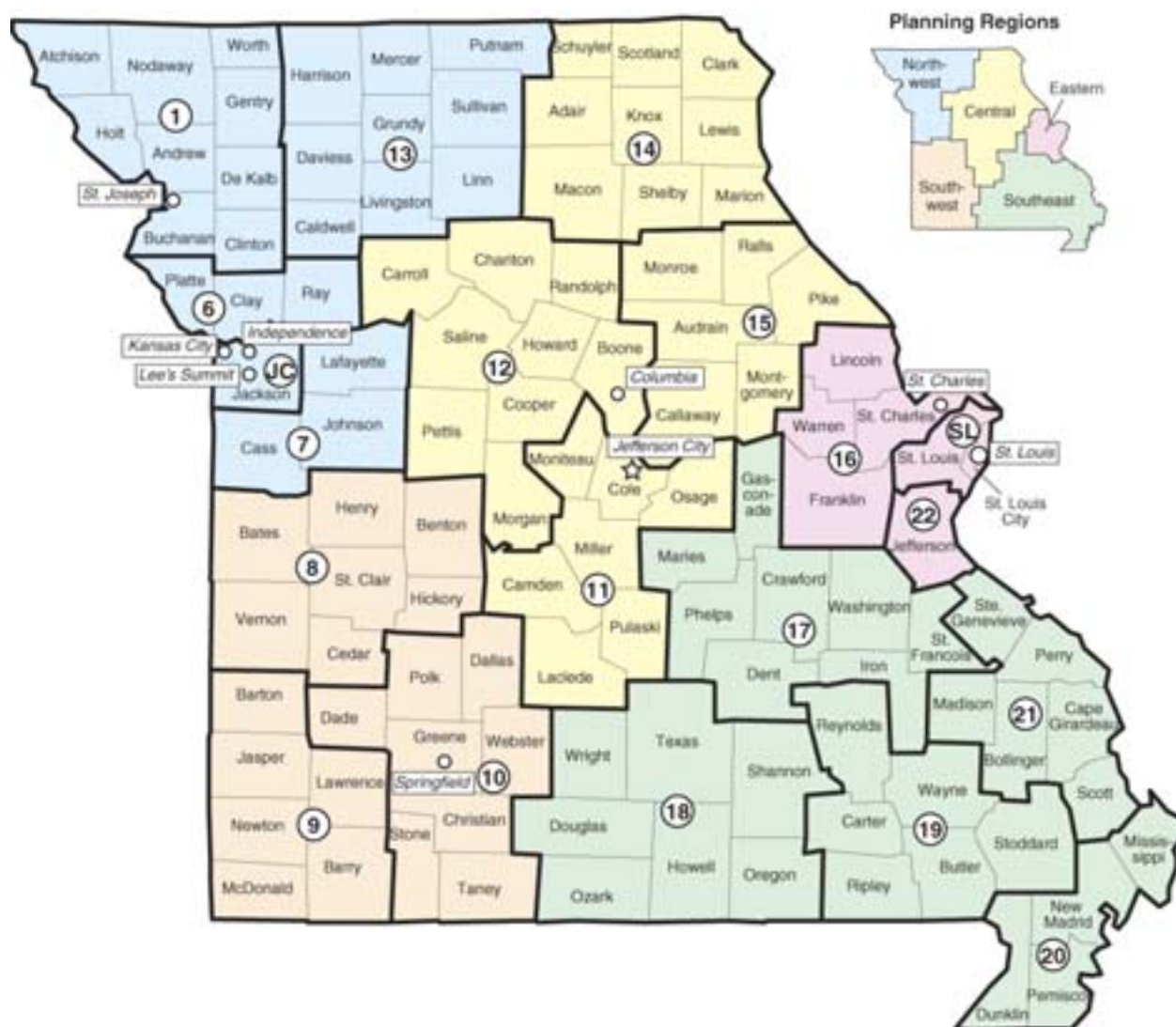
ADA also provides a very specialized program called the Comprehensive Substance Treatment and Rehabilitation (CSTAR) program. This program's unique approach to substance abuse treatment expands outcome expectations by offering a flexible combination of clinical services and living arrangements that are individually tailored for each client. The CSTAR model was developed by ADA and is funded by Missouri's Medicaid program and the division's Payment of Services (POS) data system. CSTAR consists of assessment and treatment planning, community support to provide continuity of treatment, monitoring of progress, and access to needed community services and resources. It also offers counseling, specialized target population services for adolescents and women and their children, day treatment services, and living arrangement options that are permanent, substance-free, and conducive to treatment and recovery. CSTAR focuses on serving people where they live by providing appropriate treatment services in a normalized, safe (substance-free) home. The program provides drug rehabilitation services, special skill-building and education programs, a protective setting for clients, and case management to help meet medical and social needs. A total of 23 agencies were contracted to provide CSTAR services as of September 2003.

The integrative approach seeks to merge substance abuse information from multiple sources to create a comprehensive picture of substance abuse treatment need.

1.3 Rationale for Integrative Approach

This integration study builds on, but also parallels the 1999 integration study completed as part of the State's first STNAP. In essence, the integrative approach seeks to merge available substance abuse information from multiple sources, using rigorous statistical methods and up-to-date computer technology, to create a comprehensive picture of statewide, regional, and service area substance abuse treatment need to guide service planning and resource allocation. The key element in

Figure 1.1 County Composition for Each Planning Region and Service Area



Source: Integrating Population Estimates and Substance Abuse Treatment Need in Missouri: 2003 Update

the integration process is bringing together findings from the STNAP studies along with information on populations not covered in those studies. Missouri's integrative studies do this by starting with estimates from the general household population and others conducted by ADA and then integrating estimates from studies on the missed populations. This process of merging data from multiple sources provides a broad base of coverage useful for more accurately predicting the need for substance abuse treatment services in Missouri.

Many tools are available for conducting needs assessments (e.g., surveys, social indicators, prevalence studies, forums, key informants, and service data). It is now generally recognized that the use of a single tool in an assessment is inadequate. To illustrate, two popular approaches to estimating need for treatment are (1) conducting large-scale household surveys to estimate the prevalence of substance abuse problems, and (2) collecting institutional records or staff reports to determine the number of clients with substance abuse disorders.

The major weakness of the household survey is that it excludes nonhousehold populations (e.g., households without telephones, or those living in unconventional housing units or institutions such as homes for elderly people, jails, welfare hotels, and residential treatment programs); thus introducing a source of systematic bias in the estimates (National Institute on Drug Abuse [NIDA], 1994; Regier et al., 1988; Weisner et al., 1995). This weakness is particularly significant because individuals living in some of these nonhousehold settings tend to have higher rates of substance abuse problems. Thus, their exclusion introduces systematic bias into prevalence estimates.

Many tools are available for conducting needs assessments. However, a review of the literature revealed that none of these methods offered a well-developed set of guide-lines on how to use needs assessment data to plan or guide service delivery.

The impact of using only household surveys in a needs assessment is documented by three well-known studies. In DC*MADS, inclusion of institutionalized individuals and homeless and transient people led to the identification of a significant number of drug users who would otherwise have been missed. However, the aggregated household and nonhousehold data resulted in only a very slight increase in the overall prevalence rate for illicit drug use. Specifically, the prevalence of illicit drug use based solely on the DC*MADS household sample was 11.7% (NIDA, 1994). After adjusting for rates found among the institutionalized and homeless/transient populations, the rate increased to 12.0%. Despite the fact that these institutionalized groups had relatively high rates of drug use, their small number (less than 1% of the total population) constrained their impact on overall prevalence rates. However, increases in the prevalence rate *did* translate into a higher number of potential service users. In DC*MADS, the aggregate population data yielded estimates of approximately 14,000 more illicit drug users. When considering hard drugs, such as crack/cocaine, these data suggest that household estimates alone would fail to capture about 20% of the past month crack/cocaine users (NIDA, 1994).

Research collected through the Epidemiologic Catchment Area (ECA) studies also confirmed the utility of addressing the substance abuse needs of nonhousehold populations (Regier et al., 1990). It found that although institutionalized adults comprised only 1.3% of the population, they had much higher rates of substance abuse and mental health problems. The lifetime prevalence of any alcohol, drug, or mental health problem was 71.9% among institutionalized adults, compared to 32.7% among noninstitutionalized adults. When comparing different types of institutions or substance abuse or mental health problems, psychiatric hospitals had the highest lifetime rate (82%), followed closely by prisons (82%) and nursing homes (65.5%). When looking specifically at addictive disorders, the prison population had the highest lifetime rate (72%), compared to psychiatric hospitals (39.6%) and nursing home residents (14.3%).

Third, the Institute of Medicine (IOM), in its landmark study of treatment for drug abuse problems, undertook an integrated needs assessment approach to estimate the number of individuals nationwide needing treatment for illicit drug use (Gerstein & Harwood, 1990). It began by assessing the general household population using a nationally representative data set compiled by RTI (i.e., the NHSDA). The IOM researchers discovered, however, that a significant portion of those in need were not reachable through traditional survey methods. Their research concluded that three additional high-risk populations – criminal justice populations, homeless/transient people, and childbearing women – should be addressed to broaden the usefulness and scope of needs assessment activities.

With regard to developing estimates based solely on data collected from institutional records or staff reports, a key limitation is that this estimation strategy does not capture individuals in need who are not receiving services. Research indicates that many people who have substance abuse or dependence problems, or who perceive some level of need for substance abuse services do not receive them. For example, the 2001/2002 Missouri household telephone survey found that of those who were estimated to need treatment during the past year, only 3.5% received some type of assistance and only 1.5% received formal treatment. That is, of the 431,600 adults estimated to need treatment in the past year, only 6,400 reported receiving such services (Weimer et al., 2003). This is significantly lower than the number of admissions in 2001 and 2002 reported by ADA. According to ADA, there were 31,952 admissions in Missouri in 2001 and 31,338 admissions in 2002 for adults aged 18 or older. The ADA data show that the 2001/2002 Missouri Household Telephone Survey estimates of treatment utilization are significantly lower than ADA's official counts. However, ADA data still show that only about 7% of adults estimated to need treatment received services in 2001 and 2002.

Even in needs assessment efforts that focus on service users only, the strategy of obtaining services information by compiling records from health and human service settings is limited. Such a strategy introduces bias for two key reasons: (1) the lack of comparability among measures obtained across service settings, and (2) the difficulties in obtaining an unduplicated account of service users, given that the same individuals often present at many agencies, often simultaneously.

Finally, despite the increasing use of multiple tools in needs assessments, reviews of the literature on these efforts revealed few guidelines on how to systematically integrate data from multiple sources and no guidelines on how to do so interactively (“Prevalence Estimation Techniques,” 1993; Soriano, 1995).

1.4 Study Overview and Report Organization

This study updates information from the 1999 Missouri integrative treatment needs assessment study. The process was facilitated by developing an automated system for updating data and outputting reports. The need for substance abuse treatment was estimated for various population groups including

- adults in households,
- homeless adults,
- institutionalized adults,
- incarcerated adults (i.e., jail and prison inmates), and
- adolescents.

Hence, treatment needs estimates in this study encompass high-risk groups missed by traditional needs assessment approaches.

This chapter provides background information on Missouri’s STNAP studies and treatment system, as well as a summary of the rationale for the integration efforts. This is followed by an overview of Missouri’s STNAP data integration methods in Chapter 2. Chapter 3 provides an overview of the Missouri AIM and Chapter 4 contains a summary of selected key findings produced by the Missouri AIM. Further details regarding the Missouri AIM can be found in the user’s manual (Candrilli, Weimer, & Rachal, 2003).

The Missouri AIM estimates the need for substance abuse treatment for various population groups, including adults in households, homeless adults, institutionalized adults, incarcerated adults, and adolescents.

2. Overview of STNAP Data Integration Methods

Data from the 2001/2002 household telephone survey, and 2001 jail survey, cover well over 90% of Missouri's population. The populations covered by STNAP studies are listed in **Table 2.1**, along with a presentation of the populations missed (i.e., not covered) by STNAP research. Although the missed groups make up a very small proportion of the total state population, it is likely that they have greater substance abuse-related needs; thus, it is important that they be considered and appropriately emphasized when assessing treatment needs.

Table 2.1 Populations Covered and Not Covered in Missouri's STNAPs

Population	Adult Household Population	Homeless Adults	Institutionalized Adults	Youths	Special Populations
Covered¹	Households with phones		Jail inmates	Household adolescents (includes school dropouts)	
Missed	Households without phones	Emergency shelter users Soup kitchen users Individuals living on the street	Prison inmates Nursing home residents Psychiatric hospital patients Inpatient program clients	Homeless youths Institutionalized youths Juvenile arrestees	Adults charged with driving under the influence of alcohol (DUI) Pregnant women Injection drug users

¹ This term refers to those populations for which prevalence data were obtained directly from the Missouri demand and needs assessment studies.

Sources: *Integrating Population Estimates of Substance Abuse Treatment Need in Missouri* and *Integrating Population Estimates of Substance Abuse Treatment Need in Missouri: 2003 Update*.

The heart of the integrative study approach rests in the construction of treatment needs matrices representing each of the covered and non-covered population groups. Each matrix combines information on substance abuse prevalence rates, population sizes, and numbers in need (prevalence rate multiplied by population size) from multiple sources. Separate matrices are developed for statewide, regional, and service area estimates of treatment needs for each population of interest to the State of Missouri. The state and regional matrices for some of the population groups (i.e., the mutually exclusive adult populations described in detail below) are further broken down by gender, age (18 to 24, 45 to 64, and 65 or older), and race/ethnicity (non-Hispanic white and other).

2.1 Summary of Data Integration Steps

The analytic steps used in the 1999 integrative study and in the development of the Missouri AIM are summarized in **Table 2.2**. A full description of the integration methods are provided in Chapter 4 of the 1999 integration study (Sanchez et al., 1999).

Table 2.2 Summary of Data Integration Steps

Step	Explanation
1	Designate definition of treatment need for each study.
2	Determine level at which data will be broken down (e.g., service area by gender by age).
3	Determine population bases for all mutually exclusive and special populations.
4	Extract prevalence rates from STNAP studies and, based on population estimates determined in Step 3, calculate the number in need of treatment.
5	Address issues of generalizability of the prevalence rates obtained to the 20 service areas and 5 planning regions.
6	Identify prevalence rates from other available studies and from reviews of the literature for populations not covered in the STNAP as well as for special populations.
7	Address issues of multiplicity in sampling frames across studies.
8	Integrate data from across all studies using weighted prevalence estimates for substance abuse treatment needs statewide, by planning region, and by county for each of the mutually exclusive and special populations.

Sources: *Integrating Population Estimates of Substance Abuse Treatment Need in Missouri* and *Integrating Population Estimates of Substance Abuse Treatment Need in Missouri: 2003 Update*.

2.2 Definitions of Population Groups

Mutually Exclusive Population Groups. In an effort to generate integrated rates of substance abuse treatment needs across Missouri, the statewide population was divided into mutually exclusive groups based on where individuals reside at any given moment in time. The mutually exclusive population groups are composed of household and nonhousehold populations of adults and of household youths. This framework was developed to facilitate the integration of nonoverlapping prevalence estimates and to highlight adult populations with high substance abuse-related service needs.

The adult household population was further broken down into households with and without telephones, based on an extensive review of the literature indicating that nontelephone household populations have different rates of treatment needs from the telephone household population and, thus, need to be treated separately. Household youths covered in the integration study included all adolescents (aged 12 to 17 years).

The nonhousehold, mutually exclusive populations in this study include homeless adults, institutionalized adults, adults in state prisons, adults in jails, and adults in other group quarters. Despite the number and diversity of studies conducted as part of the Missouri STNAPs, studies examining treatment need among the homeless and institutionalized populations were missed. Homeless adult populations include people using emergency and domestic violence shelters and individuals living on the street. Institutionalized adult populations include people in nursing homes and psychiatric hospitals. Adults living in other group quarters and those in federal prisons were excluded from the analysis. People in groups are often served by different substance abuse service systems. The other group quarters segment includes people living in college dormitories and military barracks.

Special Population Groups. The State of Missouri identified several populations as important priority groups for substance abuse treatment and intervention planning efforts. The special populations include pregnant women, people who are injection drug users, and adults charged with DUI. These populations are referred to throughout this report as special populations. The special population groups overlap with the mutually exclusive groups; they may also overlap with each other. As with some of the mutually exclusive populations, substance abuse among these special populations may pose public health threats, hence their treatment needs are often prioritized by state planners.

2.3 Updating Mutually Exclusive and Special Population Groups for the 2003 Integrative Study

For the 1999 study, the 1990 U.S. Census was the primary data source for determining population bases (see Chapter 4 of the 1999 report [Sanchez et al., 1999]). In this section, we describe the primary data sources and the approach for updating the mutually exclusive and special population groups for inclusion in the Missouri AIM.

Mutually Exclusive Population Groups. To update the population bases for this study, first, population bases for the demographic subgroups in the framework were determined. The framework has service area, region, and statewide level data broken down by gender, race/ethnicity (non-Hispanic white and black, Hispanic, and other races/ethnicities), and age (18 to 24 years, 25 to 44 years, 45 to 64 years, and 65 years and over).

County-level population data were available by age, race/ethnicity, and gender from the *Census 2000 Summary File 1 (SF1) 100-Percent Data* (available at <http://factfinder.census.gov>). County-level data can be rolled up to the service area, region, and statewide levels.

The 2000 Census Summary File 1 (SF 1) data for Missouri also provided the primary source of updated information on the mutually exclusive population counts at the county, tract, block group, and

County-level population data from the 2000 Census were used to update the population bases for the mutually exclusive population groups.

individual block levels. The SF 1 data provided the following population counts:

- Group quarters by sex by age (<18, 18-64, 65+) by race/ethnicity (total, Hispanic, non-Hispanic white, black) by group quarters type (including correctional institutions, nursing homes, hospitals/wards and hospices for chronically ill, mental (psychiatric) hospitals or wards, juvenile institutions, college dormitories (includes college quarters off campus), military quarters, and other noninstitutional group quarters).
- Group quarters by group quarters type, including the institutionalized population (i.e., correctional institutions, nursing homes, hospitals/wards, hospices, and schools for the handicapped, Juvenile institutions) and noninstitutionalized population (i.e., college dormitories including college quarters off campus, military quarters, group homes, religious group quarters, worker dormitories, crews of maritime vessels, other nonhousehold living situations, and other noninstitutional group quarters)
- Total population by sex by age (12-17, 18-24, 25-44, 45-64, 65+) by race/ethnicity (total, nonHispanic white, non-Hispanic black, Hispanic)
- Total population in households by sex by age (12-17, 18-24, 25-44, 45-64, 65+) by race/ethnicity (total, nonHispanic white, non-Hispanic black, Hispanic)
- Telephone service available by race/ethnicity (total, nonHispanic white, Hispanic, black)

Additional prison and jail data were obtained from the *Census of State and Federal Adult Correctional Facilities, 1995* and the *Annual Survey of Jails: Jurisdiction-Level Data, 1998*, both compiled by the Inter-university Consortium for Political and Social Research (ICPSR), and the State of Missouri Department of Corrections web page <http://www.doc.missouri.gov/division/adult/address.htm>. These data sources provided the

- name and address of the facility
- State and county in which the facility was located
- government authority (state, municipal, federal)
- number of inmates in total and by gender
- number of inmates by race/ethnicity (white, black, Hispanic, American Indian/ Alaska Native, Asian/ Pacific Islander)

- number of inmates under 18 years of age
- number of juvenile (under age of 18) inmates in total and by gender

The Census total population counts and group quarters counts were used to determine the number of persons in the household (phone and no phone) and nonhousehold (correctional institutions, nursing homes, juvenile institutions, other institutions, college dormitories, military quarters, and other noninstitutional group quarters) category by age by race by gender by county.

The black population was treated as nonHispanic black for simplicity since there was no way of splitting the black population into Hispanic and nonHispanic and a very small proportion (less than 1 percent) of blacks are Hispanic. The “other” reported race/ethnicity category was calculated by subtracting the sum of the Hispanic, nonHispanic white, and nonHispanic black counts from the total.

The correctional institution population was distributed into the subcategories of federal prisons, state prisons, and jails. To subdivide the 18 to 64 age group into the 18 to 24, 25 to 44, and 45 to 64 reported age categories, the individual Census block level data was accessed. Frequently, the prisons and jails occupied a complete Census block so that the total population was nearly equal to the group population counts.

To determine the age distribution for college dormitories and military quarters, most of the 18 to 64 Census age group was allocated to the 18 to 24 reported age category with the remainder in the 25 to 44 category. For the nursing home population, all of the 18 to 64 Census age group was assigned to the 45 to 64 reported age category when possible, with the remainder assigned to the 25 to 44 category.

Finally, the reported homeless population was equal to the “other nonhousehold living situations” Census counts. The age and gender counts were obtained by subtracting all other group quarter categories from the total nonhousehold counts.

Special Population Groups. The updated population bases for pregnant women were obtained from the Missouri Department of Health. The number of live births by mother’s county of residence by age for 2001 was extracted from the Missouri Department of Health website (<http://www.health.state.mo.us/BobPreg/preg2.html>).

The updated number of adults arrested for DUI for each county was extracted from the Uniform Crime Report for 1998. Data were provided originally for a social indicator study conducted as part of Missouri’s prevention needs assessment (Sanchez, Weimer, & Rachal, 2002). For this study, the Missouri AIM uses the injection drug user data prepared

for the 1999 report because new data for Missouri were not available at the time the model was developed.

2.4 Determining Prevalence Estimates for the 2003 Study

Despite the diversity of Missouri's demand and needs assessment family of studies, some mutually exclusive population groups and special populations were not studied. Because several populations were not captured by the STNAP studies and because STNAP data may have only captured a small percentage of certain populations, information from literature reviews was used to supplement and develop substance abuse prevalence rates. **Tables 2.3** and **2.4** outline the sources of prevalence data for all populations.

Table 2.3 Sources of Substance Abuse Prevalence Data for Mutually Exclusive Population Groups

Data Source	Household Adults		Nonhousehold Adults				Youths	
	Phone	No Phone	Home-less	Institutionalized	Jail Inmates	State Prison Inmates	Household Youths	School Dropouts
2001/2002 STNAP Household Survey	X						X	
2001 STNAP Jail Survey					X			
1998 STNAP Arrestee Survey						X		
Literature Review		X	X	X		X		X

Sources: *Integrating Population Estimates of Substance Abuse Treatment Need in Missouri* and *Integrating Population Estimates of Substance Abuse Treatment Need in Missouri: 2003 Update*.

Prevalence estimates for the mutually exclusive population groups were derived from Missouri STNAP studies and literature reviews.

For the literature reviews on special populations conducted for the 1999 study, the citation database (NEEDWIN.dat) was used. Approximately 5,400 abstracts are contained in this database. Articles were accessed from 1980 onward. Relevant abstracts were examined and articles with direct relevance to this study were reviewed. This included studies employing diagnostic instruments, clinical criteria, or accepted screening instruments and providing 6-month or past year prevalence rates of alcohol and/or drug abuse. A matrix was created to catalogue information on each relevant article, including sample characteristics, data collection methodology, instrumentation, prevalence rates, results/conclusions, generalizability, and limitations.

Table 2.4 Sources of Substance Abuse Prevalence Data for Special Populations

Data Source		Pregnant Women	Adult IDUs	Adults Charged with DUI
1997 Household Survey			X	
Literature Review		X	X	X

Note: To conduct the reviews, a database created by the National Technical Center (NTC) for Substance Abuse Needs Assessment was searched. The NTC was established to provide technical support to states conducting studies to meet the requirements of the Substance Abuse Prevention and Treatment (SAPT) Block Grant applications and other planning activities. The NTC is a division of the Harvard Medical School's Department of Psychiatry at Cambridge Hospital in Cambridge, Massachusetts.

Sources: *Integrating Population Estimates of Substance Abuse Treatment Need in Missouri* and *Integrating Population Estimates of Substance Abuse Treatment Need in Missouri: 2003 Update*.

Substance abuse for all specified populations was determined based upon DSM-III-R or DSM-IV criteria. Need for treatment refers to individuals meeting DSM-III-R or DSM-IV criteria for alcohol or illicit drugs.

For the purposes of generating prevalence rates for treatment need, substance use referred to alcohol and other drug use, and excluded tobacco. Substance abuse referred to alcohol or drug abuse only. Abuse of either substance was defined differently across the STNAP surveys as well as across prevalence studies in the published literature. Substance abuse for the State's 2001/2002 household survey and 2001 jail survey included people who met the criteria specified in the fourth edition of the *Diagnostic and Statistical Manual of Mental Disorders (DSM-IV)* (American Psychiatric Association [APA], 1994). Substance abuse in the published literature and other Missouri STNAP surveys is based on *DSM-III-R* (APA, 1987) criteria. Further, because we were not able to distinguish between alcohol and other drug abuse, substance abuse service need refers to the need for alcohol or other drug services. A summary of prevalence rate findings from previous STNAP studies and literature reviews are summarized in **Table 2.5**.

Table 2.5 Population Groups, Sources of Data, and Estimated Prevalence of Need for Substance Abuse Services

Population	Source	Estimated Prevalence of Treatment Need (Range)
Household adults with phones	2001/2002 STNAP Household Telephone Survey	10.4
Household adults without phones	Geller, 1995	13.3
Homeless adults	Fischer, Shapiro, Breakey, Anthony, & Kramer, 1986; Kogel, Burnam, & Farr, 1988; Robertson, Zlotnick, & Westerfelt, 1997	36.0 (31.2 – 52.4)
Institutionalized adults	Alexander, Craig, MacDonald, & Haugland, 1994; Reiger, 1990	37.1 (14.3 – 49.0)
Jail and State prison inmates	2001 STNAP Jail Survey 1998 STNAP Arrestee Survey	66.0 53.4
Household youths	2001/2002 STNAP Household Telephone Survey	5.8
Pregnant women	Ebrahim et al., 1998; NHSDA, 1998; National Institute on Drug Abuse (NIDA), 1996	17.6 (14.1 – 22.2)
Adult IDUs	1997 STNAP Household Survey; NIDA, 1994	100
Adults charged with DUI	Missouri Department of Public Safety; Uniform Crime Reporting, 1999;	100

Sources: *Integrating Population Estimates of Substance Abuse Treatment Need in Missouri* and *Integrating Population Estimates of Substance Abuse Treatment Need in Missouri: 2003 Update*.

3. Overview of Missouri Automated Integration Model (AIM)

The Missouri AIM was designed to facilitate the use of integrated data by service planners and to extend the data's usefulness into the future. The Missouri AIM can be used by the state in subsequent years to estimate treatment needs and to identify key gaps in the state's current data collection efforts relating to needs assessment.

3.1 Use of the Missouri AIM as a Service Planning Tool

The AIM facilitates planning tasks in a number of ways. The tool enables ADA planners to analyze, in a very dynamic and efficient way, how best to distribute both services and resources. For instance, the tool allows planners to estimate treatment need, service capacity, utilization, and costs, but also to observe changes in these estimates over time, to assess the patterns change in these estimates over time, and to examine treatment system configuration. Further, the spreadsheet is capable of producing estimates of need, demand, and costs for specific subpopulations, service areas, and planning areas, as well as statewide. Third, the updated estimates can be produced routinely given the tool's capability of inputting new data. Finally, the AIM is capable of producing reports in a number of formats including Forms 8 and 9 required for federal Block Grant reporting.

The state can use this spreadsheet model to view summary reports based on existing (default) data, enter updated input data, view reports based on new data, and/or complete selected state block grant application forms.

3.2 Summary of the AIM Design

The Missouri AIM was developed using Microsoft Excel and Visual Basic for Applications. The user can easily navigate through the model by reading the instructions on each screen and by clicking a series of buttons in the upper left corner of each screen that will automatically guide the user through the model. The model also allows the user to update many input variables (i.e., new demographic breakdowns, rates of treatment need, annual capacity statistics, etc.) that affect the summary reports. The current Missouri AIM is designed so that the user may review reports based on existing (default) data, update the model with new data, or complete selected block grant application forms. A variety of reports are pre-programmed into the model, all of which can be updated with new data and printed out in hard copy form.

3.3 Input Data

Within the model, users are able to identify all data sources used to develop the model. Possible input data which the user may supply include the following:

- location (state, region, service area);
- population counts by demographic group (gender, race/ethnicity, and age);
- population counts for special population subgroups (pregnant women, DUI arrestees, and injection drug users [IDUs]);
- substance abuse treatment need rates;
- substance abuse treatment demand rates;
- treatment capacity by modality and location;
- treatment utilization by modality and location; and
- treatment cost by level of care/modality.

Although users of the Missouri AIM will be able to change the input data noted above, the model also includes a set of unalterable, default data. The default data are those input data that produce the “best estimates” of treatment need and other estimates, based on the “best” data available at the time the model was developed. This will allow users to avoid unwanted alteration of the original data.

3.4 Producing Estimates of Treatment Need

In producing estimates for a given set of input data, the model relies on straightforward algebraic formulas driven by state-, region-, or service area-level data. Statistical estimations that require person-level data, such as regressions, weighted sums, were not used. This approach allows the use of fewer data sources and thus computes results rapidly when model parameters are changed. All formulas used can be made visible to the analyst. Most formulas are password-protected. While providing some security, this feature may provide users more flexibility in changing assumptions related to policy or research questions that cannot be changed by adjusting input data.

A number of estimates can be produced from the data inputted into the model, such as treatment utilization ratios (capacity/utilization) and excess treatment capacity (actual capacity utilization) both at the state, region, and service area levels. Estimates may also serve as intermediate input data. For example, in order to obtain an estimate for the number of people in need of treatment who are eligible for publicly subsidized services, the user will first need to compute the total number of individuals who are in need of treatment.

In summary, the approach has the advantages of being intuitive, simply constructed, and easy to use. Despite the model’s simplicity, our approach does allow sufficient flexibility such that increased complexity

can be built into future versions. For example, future versions may include more extensive sets of input data, the addition of more features to increase the model's user-friendliness, the ability to estimate additional variables of interest, and the ability to perform statistical estimations and specific estimates of a special population's size and treatment need rates directly as part of one or more mutually exclusive populations.

A user's manual was developed which describes the various uses of the AIM and provides operational instructions and provides summary output for the default data. A copy of the user's manual for the Missouri AIM (Candrilli, Weimer, and Rachal, 2003) is available from ADA.

4. Highlights of Results

This chapter presents selected output data generated by the Missouri AIM. The selected tables illustrate the plethora of data on population bases, demographic characteristics, treatment needs and demand, and eligibility that is available on the input and output tables in the model. A list of all output tables including those presented in this chapter, are listed in **Table 4.1** and a complete printed set of tables are provided in **Appendix A**.

4.1 Adult and Adolescent State, Regional, and Service Area Population Estimates

Table 4.2 (Table 1A from the AIM) provides population estimates of the Missouri adult and adolescent population at the state, region, and service area level. The adult population is further broken down into mutually exclusive groups based on residence. Findings from **Table 4.2** are highlighted below.

Most (96%) adults in Missouri live in households, while 4% are either homeless, incarcerated, institutionalized, or living in group quarters.

- The vast majority (96%) of Missouri's adult population lives in households. Of those, 94% are in households with telephones, and 2% are in household with no telephones.
- Of the estimated 4% of Missouri's adult population who do not live in households, more than one third is institutionalized, 15% live in State prisons, 6% are jail inmates, nearly 6% is homeless, and less than 1% are federal prison inmates. An estimated 39% of nonhousehold adults live in other group quarters.
- Most adults live in the Eastern Region (35%) and Northwest Region (24%). Approximately 15% of adults live in the Southwest, 14% in the Central, and 12% in the Southeast Regions.
- With respect to the nonhousehold adult populations across regions, largest percentage of homeless adults (37%) and institutionalized adults (30%) live in the Eastern Region. The largest percentage of adult jail (32%) and state prison (54%) inmates, and adults living in other group quarters (32%) live in the Central Region. The Southwest Region is the only region with federal prison inmates.
- Household youth make up about 11% of the total population in Missouri. Within the group of household youths there are an estimated 13,688 adolescent dropouts; they are fairly evenly distributed by region.

Table 4.1 Tables Included in the Missouri Automated Integration Model

Model Table	Description
Demographics	
*1A	Mutually Exclusive Population Groups by Region/Service Area
1B	Mutually Exclusive Adult Population Groups by Gender by Region/Service Area
1C	Mutually Exclusive Adult Population Groups by Race/Ethnicity by Region/Service Area
1D	Mutually Exclusive Adult Population Groups by Age by Region/Service Area
*1E	Adult Population by Age, Gender, and Race Ethnicity by Region/Service Area
Need, Demand, & Eligibility	
*2A	Statewide Treatment Need, Demand, and Eligibility by Mutually Exclusive Population Groups
2B	Statewide Adult Treatment Need, Demand, and Eligibility of Mutually Exclusive Population Groups by Gender
2C	Statewide Adult Treatment Need, Demand, and Eligibility of Mutually Exclusive Population Groups by Race/Ethnicity
2D	Statewide Adult Treatment Need, Demand, and Eligibility of Mutually Exclusive Population Groups by Age
*3A	Regional and Service Area Treatment Need, Demand, and Eligibility by Mutually Exclusive Population Groups
3B	Regional and Service Area Adult Treatment Need, Demand, and Eligibility of Mutually Exclusive Population Groups by Gender
3C	Regional and Service Area Adult Treatment Need, Demand, and Eligibility of Mutually Exclusive Population Groups by Race/Ethnicity
3D	Regional and Service Area Adult Treatment Need, Demand, and Eligibility of Mutually Exclusive Population Groups by Age
*4	Treatment Need and Demand Among Special Populations
*5	Assessment of State Treatment System's Capacity and Utilization
6	Annual State, Regional, and Service Area Treatment Cost Estimates by Treatment Setting

* Indicates findings presented in this chapter.

Source: Integrating Population Estimates of Substance Abuse Treatment Need in Missouri, 2003.

Estimates of the statewide adult population by age, gender, and ethnicity are shown in **Table 4.3** (Table 1E from the model). The data are presented in four matrices (non-Hispanic white, non-Hispanic black, "other" ethnicity, and all ethnicities). Within each of these matrices are cross-tabulations by age and gender. **Table 4.3** reveals the following important findings.

- Overall, adults aged 25 to 44 years comprise the largest age group of adults (39%). An estimated 30% of adults are aged 45 to 64 years; 18% are aged 65 years and older; and 13% are between the ages of 18 and 24.

Table 4.2 Missouri Mutually Exclusive Population Groups by Region / Service Area

Table 4.2 Missouri Mutually Exclusive Population Groups by Region / Service Area												
	Household Adults		Nonhousehold Adults						Total Adult Population	Adolescents		Total Population (Adults & Adolescents)
Region / Service Area	Phone	No Phone	Homeless	Institutionalized	Jail Inmates	State Prison Inmates	Federal Prison Inmates	Other Group Quarters		Household	subset: Dropouts	
Central Region	501,256	17,990	1,616	7,874	2,922	12,733	0	19,449	563,840	63,216	1,771	628,827
Service Area 11	157,044	4,686	375	1,592	2,171	3,808	0	5,617	175,293	20,223	569	196,085
Service Area 12	196,670	6,234	827	2,929	350	3,478	0	9,343	219,831	23,445	728	244,004
Service Area 14	72,850	3,159	285	1,774	113	0	0	3,440	81,621	9,051	226	90,898
Service Area 15	74,692	3,911	129	1,579	288	5,447	0	1,049	87,095	10,497	248	97,840
Eastern Region	1,418,097	22,973	3,189	16,137	2,798	1,112	0	12,362	1,476,668	180,836	4,463	1,661,947
Service Area 16	304,826	4,668	453	2,253	461	0	0	2,312	314,973	43,231	1,194	359,398
Service Area 22	138,401	2,471	431	1,261	128	0	0	137	142,829	19,154	553	162,536
Service Area 31	974,870	15,834	2,305	12,623	2,209	1,112	0	9,903	1,018,856	118,451	2,706	1,140,013
Northwest Region	963,223	21,679	1,017	12,889	1,641	6,691	0	12,073	1,083,013	118,264	3,667	1,129,934
Service Area 1	119,025	3,398	356	2,341	214	5,088	0	3,388	133,810	15,366	271	149,447
Service Area 6	201,846	2,562	259	1,819	401	0	0	1,265	208,152	24,535	646	233,333
Service Area 7	111,557	2,525	110	1,937	130	0	0	2,984	119,243	15,329	395	134,967
Service Area 13	55,925	2,578	113	1,336	65	503	0	174	60,694	7,251	152	68,097
Service Area 30	464,870	10,516	179	5,456	831	0	0	4,262	486,114	55,783	2,193	544,090
Southeast Region	461,875	24,905	1,173	8,411	1,025	3,491	0	4,804	505,684	61,556	1,629	568,869
Service Area 17	129,036	6,257	286	2,619	258	3,491	0	2,057	144,004	17,377	512	161,893
Service Area 18	82,549	4,800	152	1,184	103	0	0	212	89,000	11,248	252	100,500
Service Area 19	76,547	4,951	283	1,264	65	0	0	349	83,439	9,773	356	93,588
Service Area 20	56,659	4,785	68	1,120	331	0	0	41	63,004	8,009	168	71,181
Service Area 21	117,084	4,112	384	2,224	268	0	0	2,145	126,217	15,149	341	141,707
Southwest Region	566,810	23,805	1,602	7,719	760	680	1,265	11,493	613,324	68,954	2,178	684,456
Service Area 8	76,556	3,819	66	1,662	117	0	0	415	82,635	9,798	206	92,639
Service Area 9	177,684	9,409	429	2,347	321	0	0	1,640	191,830	23,153	777	215,760
Service Area 10	312,570	9,777	1,107	3,710	312	680	1,265	9,438	338,859	36,003	1,195	376,057
Statewide Total	3,901,261	110,452	8,597	53,838	9,136	23,687	1,265	60,171	4,167,519	492,826	13,688	4,674,033

Source: 2000 U.S. Census; Missouri Department of Elementary and Secondary Education.

- Overall, females slightly outnumber males (52% versus 48%, respectively).
- Most of Missouri's population is non-Hispanic white (85%). Approximately 10% is non-Hispanic black and 5% are of another race or ethnicity.
- White females outnumber white males and black females outnumber black males. However, males of other races or ethnicities outnumber females of other races or ethnicities.
- Among whites, blacks, and those of other races or ethnicities, most adults were ages 25 to 44 followed by adults ages 45 to 64. Among whites, there were more adults aged 65 and older than adults 18 to 24. However, among blacks and those of other races or ethnicities, more adults were ages 18 to 24 than 65 or older.

4.2 Statewide Estimates of Need, Demand, and Eligibility for Treatment

Approximately 11% of adults and 6% of household youths are estimated to be in need of treatment.

Table 4.4 (model Table 2A) provides estimates of statewide treatment need, demand, and eligibility. There were approximately 491,223 adults and adolescents estimated to need treatment. As anticipated,

Table 4.3 Missouri Statewide Totals, Adult Populations By Age, Gender, and Race/Ethnicity

Age	WHITE		TOTAL WHITE		BLACK		TOTAL BLACK		OTHER Ethnicity		TOTAL "OTHER"		Total Males (all ethnicities)		Total Females (all ethnicities)		TOTAL ADULTS
	Male	Female			Male	Female			Male	Female			Age				
18-24	215,671	215,252	430,923		32,529	34,765	67,294		20,373	17,388	37,761		18-24	268,573	267,403	535,976	
25-44	674,092	674,655	1,348,747		86,771	101,388	188,159		46,265	43,131	89,396		25-44	807,128	819,174	1,626,302	
45-64	534,120	558,840	1,092,960		50,610	62,654	113,264		20,894	22,742	43,636		45-64	605,634	644,236	1,249,860	
65+	281,008	406,047	687,055		20,022	33,425	53,447		6,205	8,672	14,877		65+	307,235	448,144	755,379	
Total	1,704,891	1,854,794	3,559,685		189,932	232,232	422,164		93,737	91,933	185,670		Total	1,988,560	2,178,959	4,167,519	

Source: 2000 U.S. Census

Table 4.4 Missouri Estimates of Statewide Treatment Need, Demand, and Eligibility by Mutually Exclusive Population Groups

Population Group	Prevalence Rate (% in Need)	% of those in Need who Would Seek Treatment ¹	% of Treatment Seekers who are Eligible for Subsidized Treatment ¹
<i>Household Adults</i>			
Phone	10.4%	12.5%	50.0%
No Phone	13.3%	12.5%	50.0%
<i>Nonhousehold Adults</i>			
Homeless	36.0%	50.0%	100.0%
Institutionalized	37.1%	50.0%	100.0%
Jail Inmates	66.0%	50.0%	100.0%
State Prison Inmates	53.4%	50.0%	100.0%
<i>Youths</i>			
Household Youth	5.8%	20.0%	100.0%
Population Group	Number in Need	Estimated Number in Need who Would Seek Treatment	Estimated Number of Treatment Seekers who are Eligible for Subsidized Treatment
<i>Household Adults</i>			
Phone	405,731	50,716	25,358
No Phone	14,703	1,838	919
<i>Nonhousehold Adults</i>			
Homeless	3,094	1,547	1,547
Institutionalized	19,689	9,844	9,844
Jail Inmates	6,033	3,017	3,017
State Prison Inmates	12,595	6,297	6,297
Total Adults	461,845	73,260	46,983
<i>Youths</i>			
Household Youth	29,378	5,876	5,876
Total Youth	29,378	5,876	5,876
Statewide Total	491,223	79,135	52,858

¹ Percentages are based on limited data from multiple sources.

Sources: Population figures are based on 2000 U.S. Census data.

Substance Use and Need for Treatment among the Household Population in Missouri: 2001/2002. Report prepared by Weimer, et al., RTI. Prepared for the Missouri Department of Mental Health, Division of Alcohol and Drugs Abuse, September 2003.

Integrating Population Estimates of Substance Abuse Treatment Need in Missouri. Report prepared by Sanchez, et al., RTI. Prepared for Missouri Department of Mental Health, Division of Alcohol and Drug Abuse, June 1999.

non-household adults have considerably higher rates of treatment need compared with household adults. However, because of their greater representation in the population, household adults comprise the majority of adults in need of treatment. Specifically:

- With a prevalence rate of 10.4%, an estimated 405,731 adults in households with telephones need treatment. They comprise about 88% of the adult population in need.
- Among the nonhousehold adult populations, jail inmates (66%) and State prison inmates (53%) have the highest treatment need rates. Collectively, they comprise about 4% of the adult population in need, or about 45% of the nonhousehold adult population in need.
- Institutionalized adults have an estimated rate of need for treatment of 37%. However, because institutionalized adults make up a third of the nonhousehold population, they also make up most of the nonhousehold adult population in need of treatment (48%).

Among household youth, the treatment need rate was 5.8%, or 29,378 individuals. Youths in need represented about 6% of the total population in need of treatment.

For this study, it is estimated that 12.5% of household adults and youth in need of treatment would seek services and that 50% of those in need who would seek treatment are eligible for subsidized treatment. It is also estimated that 50% of nonhousehold adults in need of treatment would seek services and that 100% would be eligible for subsidized treatment. This translates into 79,135 individuals who would seek treatment and 52,858 adults and youth who would be eligible for subsidized services.

4.3 Regional and Service Area Estimates of Treatment Need for Mutually Exclusive Populations

Table 4.5 (model Table 3A) presents the number of adults and adolescents in each region and service area estimated to need treatment. The Eastern Region has the highest number of adults estimated to need treatment (194,919), followed by the Central Region (78,585), Northwest Region (77,798), Southeast Region (56,684), and Southwest Region (53,859). Among the 20 service areas, St. Louis (SL) and Jackson County (JC) had the highest estimated number of adults in need (136,031 and 27,930, respectively). The distribution of each type of mutually exclusive adult population group in need of treatment is fairly even across the five regions with the exception of households with phones and the homeless. Treatment need among adults in households with phones and homeless adults is considerably higher in the Eastern

**Table 4.5 Missouri Estimates of Treatment Need, Demand, and Eligibility
by Mutually Exclusive Population Groups by Region and Service Area**

	Household Adults		Nonhousehold Adults					Youths		
				State						
				Institution-	Jail	Prison				
Region/Service Area	Phone	No Phone	Homeless	alized	Inmates	Inmates	TOTAL ADULTS	Household Youths	TOTAL YOUTH	TOTAL (ADULTS & YOUTH)
	Estimated Number in Need									
Central Region	63,375	2,971	582	2,922	1,934	6,801	78,585	5,945	5,945	84,530
Service Area 11	21,232	833	136	591	1,436	2,015	26,244	1,408	1,408	27,651
Service Area 12	23,010	973	297	1,087	231	1,889	27,487	2,176	2,176	29,663
Service Area 14	11,365	632	102	658	74	0	12,831	840	840	13,671
Service Area 15	7,768	533	46	587	193	2,897	12,024	1,522	1,522	13,546
Eastern Region	181,486	3,823	1,146	5,987	1,847	630	194,919	8,805	8,805	203,724
Service Area 16	48,155	948	156	835	302	0	50,396	2,758	2,758	53,154
Service Area 22	7,611	175	155	467	84	0	8,492	2,111	2,111	10,603
Service Area SL	125,719	2,701	835	4,686	1,460	630	136,031	3,936	3,936	139,967
Northwest Region	66,533	2,129	365	4,794	1,080	2,897	77,798	5,993	5,993	83,791
Service Area 1	4,580	304	127	868	139	2,645	8,663	713	713	9,376
Service Area 6	13,435	213	93	675	265	0	14,682	3,131	3,131	17,813
Service Area 7	17,066	499	40	728	84	0	18,418	800	800	19,218
Service Area 13	6,875	402	40	494	42	252	8,105	379	379	8,484
Service Area JC	24,577	711	65	2,028	549	0	27,930	971	971	28,900
Southeast Region	47,368	3,208	424	3,119	677	1,889	56,684	3,720	3,720	60,405
Service Area 17	15,701	978	102	971	169	1,889	19,810	1,613	1,613	21,423
Service Area 18	5,752	444	56	439	66	0	6,757	652	652	7,410
Service Area 19	3,750	309	102	469	42	0	4,673	510	510	5,183
Service Area 20	7,309	796	25	415	218	0	8,763	418	418	9,181
Service Area 21	14,856	680	139	825	181	0	16,681	527	527	17,208
Southwest Region	46,969	2,572	578	2,867	495	378	53,859	4,915	4,915	58,774
Service Area 8	4,435	283	24	616	78	0	5,437	455	455	5,891
Service Area 9	19,717	1,370	154	872	212	0	22,326	1,746	1,746	24,071
Service Area 10	22,817	919	399	1,378	205	378	26,096	2,715	2,715	28,811
Statewide Total	405,731	14,703	3,094	19,689	6,033	12,595	461,845	29,378	29,378	491,224

*Numbers are based on limited data from multiple sources.

Sources: Population figures are based on 2000 U.S. Census data.

Substance Use and Need for Treatment among the Household Population in Missouri: 2001/2002. Report prepared by Weimer, et al., RTI. Prepared for the Missouri Department of Mental Health, Division of Alcohol and Drugs Abuse, September 2003.

Integrating Population Estimates of Substance Abuse Treatment Need in Missouri. Report prepared by Sanchez, et al., RTI. Prepared for Missouri Department of Mental Health, Division of Alcohol and Drug Abuse, June 1999.

Region which is in keeping with its higher population of households with phones and homeless.

Among household youth in need, an estimated 30% live in the Eastern Region; 20% in the Northwest Region I; 20% in the Central Region; 17% in the Southwest Region; and 13% in the Southeast Region. Like adults, the St. Louis (SL) service area had the highest estimated number of adolescents in need (3,936).

4.4 Statewide, Regional, and Service Area Estimates of Treatment Need for Special Populations

Table 4.6 (model Table 4) provides estimates of treatment need for Missouri's adult special population groups (i.e., pregnant women, injection drug users, and individuals driving under the influence [DUI]).

Table 4.6 Missouri Estimates of Treatment Need and Demand Among Special Population Groups

Special Population	Rate of Any Need for Treatment for Alcohol or Illicit Drugs ^{a, c, d}	Total Population ^{b, c, e}	Number In Need of Alcohol or Illicit Drug Treatment
Pregnant Adult Women			
<i>State Total</i>	17.6%	75,700	13,323
<i>Central Total</i>	17.6%	9,401	1,655
Service Area 11	17.6%	2,983	525
Service Area 12	17.6%	3,633	639
Service Area 14	17.6%	1,343	236
Service Area 15	17.6%	1,442	254
<i>Eastern Total</i>	17.6%	26,876	4,730
Service Area 16	17.6%	6,432	1,132
Service Area 22	17.6%	2,654	467
Service Area SL	17.6%	17,790	3,131
<i>Northwest Total</i>	17.6%	19,666	3,461
Service Area 10	17.6%	2,056	362
Service Area 6	17.6%	4,213	741
Service Area 7	17.6%	2,199	387
Service Area 13	17.6%	1,012	178
Service Area JC	17.6%	10,186	1,793
<i>Southeast Total</i>	17.6%	8,844	1,557
Service Area 17	17.6%	2,487	438
Service Area 18	17.6%	1,454	256
Service Area 19	17.6%	1,382	243
Service Area 20	17.6%	1,286	226
Service Area 21	17.6%	2,235	393
<i>Southwest Total</i>	17.6%	10,913	1,921
Service Area 8	17.6%	1,230	216
Service Area 9	17.6%	3,934	692
Service Area 10	17.6%	5,749	1,012

Pregnant Adult Women Data Sources and Note:

NOTE: Pregnant women refer to adult women who gave birth in 2001.

***Source:** *Integrating Population Estimates of Substance Abuse Treatment Need in Missouri*. Report prepared by Sanchez, et al, RTI. Prepared for Missouri Department of Mental Health, Division of Alcohol and Drug Abuse, June 1999.

***Source:** Missouri Department of Health, 2001.

**Table 4.6 Missouri Estimates of Treatment Need and
Demand Among Special Population Groups (continued)**

Special Population	Rate of Any Need for Treatment for Alcohol or Illicit Drugs^{a, c, d}	Total Population^{b, c, e}	Number In Need of Alcohol or Illicit Drug Treatment
Injection Drug Users			
<i>State Total</i>	<i>100.0%</i>	<i>12,378</i>	<i>12,378</i>
<i>Central Total</i>	<i>100.0%</i>	<i>1,625</i>	<i>1,625</i>
Service Area 11	100.0%	500	500
Service Area 12	100.0%	625	625
Service Area 14	100.0%	250	250
Service Area 15	100.0%	250	250
<i>Eastern Total</i>	<i>100.0%</i>	<i>4,376</i>	<i>4,376</i>
Service Area 16	100.0%	1,000	1,000
Service Area 22	100.0%	375	375
Service Area SL	100.0%	3,001	3,001
<i>Northwest Total</i>	<i>100.0%</i>	<i>3,001</i>	<i>3,001</i>
Service Area 10	100.0%	375	375
Service Area 6	100.0%	625	625
Service Area 7	100.0%	375	375
Service Area 13	100.0%	125	125
Service Area JC	100.0%	1,500	1,500
<i>Southeast Total</i>	<i>100.0%</i>	<i>1,500</i>	<i>1,500</i>
Service Area 17	100.0%	375	375
Service Area 18	100.0%	250	250
Service Area 19	100.0%	250	250
Service Area 20	100.0%	250	250
Service Area 21	100.0%	375	375
<i>Southwest Total</i>	<i>100.0%</i>	<i>1,875</i>	<i>1,875</i>
Service Area 8	100.0%	250	250
Service Area 9	100.0%	625	625
Service Area 10	100.0%	1,000	1,000

Injection Drug Users Data Source and Note:

NOTE: These figures were updates using 2000 Census data.

***Source:** *Integrating Population Estimates of Substance Abuse Treatment Need in Missouri*. Report prepared by Sanchez, et al, RTI. Prepared for Missouri Department of Mental Health, Division of Alcohol and Drug Abuse, June 1999.

Table 4.6 Missouri Estimates of Treatment Need and Demand Among Special Population Groups (continued)

Special Population	Rate of Any Need for Treatment for Alcohol or Illicit Drugs ^{a, c, d}	Total Population ^{b, c, e}	Number In Need of Alcohol or Illicit Drug Treatment
DUI			
<i>State Total</i>	100.0%	25,777	25,777
<i>Central Total</i>	100.0%	3,127	3,127
Service Area 11	100.0%	1,026	1,026
Service Area 12	100.0%	1,128	1,128
Service Area 14	100.0%	526	526
Service Area 15	100.0%	447	447
<i>Eastern Total</i>	100.0%	8,639	8,639
Service Area 16	100.0%	2,038	2,038
Service Area 22	100.0%	569	569
Service Area SL	100.0%	6,032	6,032
<i>Northwest Total</i>	100.0%	7,613	7,613
Service Area 10	100.0%	1,549	1,549
Service Area 6	100.0%	1,078	1,078
Service Area 7	100.0%	838	838
Service Area 13	100.0%	278	278
Service Area JC	100.0%	3,870	3,870
<i>Southeast Total</i>	100.0%	2,504	2,504
Service Area 17	100.0%	739	739
Service Area 18	100.0%	367	367
Service Area 19	100.0%	433	433
Service Area 20	100.0%	308	308
Service Area 21	100.0%	657	657
<i>Southwest Total</i>	100.0%	3,894	3,894
Service Area 8	100.0%	608	608
Service Area 9	100.0%	1,524	1,524
Service Area 10	100.0%	1,762	1,762

DUI Data Sources:

^a**Source:** *Integrating Population Estimates of Substance Abuse Treatment Need in Missouri*. Report prepared by Sanchez, et al, RTI. Prepared for Missouri Department of Mental Health, Division of Alcohol and Drug Abuse, June 1999.

^c**Source:** Uniform Crime Report, 1998.

Statewide, an estimated 18% of pregnant women are in need of treatment. Based on these estimates and the populations of pregnant women by region, the largest number of pregnant women in both categories of need live in the Eastern Region. Among the 20 service areas, St. Louis (3,131), Jefferson County (1,793), and service areas 16 (1,132) and 10 (1,012) had the highest estimated number of pregnant women in need of treatment services.

Injection drug users number approximately 12,834 individuals statewide with an estimated 100% in need of treatment. Based on regional population estimates, the largest proportion of injection drug users in

need of treatment live in the Eastern Region (35%), and the least in the Southeast Region (12%).

The population of individuals with DUI arrests is estimated to be about 25,777 (i.e., based on 100% in need of treatment). The largest number of individuals with DUI arrests live in the Eastern and Northwest Regions (8,639 and 7,613, respectively). Again, of all the service areas, St. Louis and Jefferson County had the largest number of persons arrested for DUI in need of services.

4.5 Treatment System Capacity, Utilization, and Unmet Demand

Table 4.7 (model Table 5) presents the annual capacity of the State treatment system serving adults and adolescents, the total number of adult and adolescent admissions, and the number of adults and adolescents expected to need and seek treatment. Based on these data, the ability of the treatment system to meet the demand is estimated in terms of capacity excess/shortage, capacity to utilization ratio, and unmet treatment need.

At the time this report was written, ADA calculated capacity as equal to the number of annual admissions. As a result, Table 5 shows no excess or shortage of capacity and a capacity to utilization ratio of 1.

Key findings from **Table 4.7** include the following:

- There were 47,182 annual admissions in Missouri during fiscal year 2002.
- Based upon the total number of annual admissions and the estimated number of adults and adolescents in need of treatment who would seek services, there is an estimated 31,954 adults and adolescents in need of treatment who did not receive services.
- The Eastern Region has the highest estimated number of individuals with unmet treatment need (14,994), which comprises almost 50% of the statewide total.
- The St. Louis (SL) service area has the highest estimated number of individuals with unmet treatment need (9,527).

4.6 Summary

This study updates data from the 1999 integration study conducted as part of Missouri's first STNAP and incorporates information from two additional assessments conducted as part of the State's second STNAP, new 2000 Census data, and research findings from other sources. In the process of updating the initial integration report, this report also provides an overview of the structure and content of the newly

The Missouri AIM estimates that about 32,000 adults & adolescents in need of treatment who would seek services did not receive treatment services in fiscal year 2002.

Table 4.7 Missouri Assessment of State Treatment System's Capacity and Utilization

Region/Service Area	Annual Capacity ¹	Total Annual Admissions ¹	Estimated Number in Need	Estimated Number in Need Who Would Seek Treatment	Capacity Excess/ Shortage	Capacity to Utilization Ratio	Unmet Treatment Need
Central Region	7,201	7,201	84,530	15,602	0	1.0	-8,401
Service Area 11	1,382	1,382	27,651	5,129	0	1.0	-3,747
Service Area 12	2,983	2,983	29,663	5,185	0	1.0	-2,202
Service Area 14	1,775	1,775	13,671	2,085	0	1.0	-310
Service Area 15	1,061	1,061	13,546	3,204	0	1.0	-2,143
Eastern Region	14,736	14,736	203,724	29,730	0	1.0	-14,994
Service Area 16	2,526	2,526	53,154	7,336	0	1.0	-4,810
Service Area 22	1,092	1,092	10,603	1,748	0	1.0	-656
Service Area SL	11,118	11,118	139,967	20,645	0	1.0	-9,527
Northwest Region	10,620	10,620	83,791	14,349	0	1.0	-3,729
Service Area 1	1,107	1,107	9,376	2,643	0	1.0	-1,536
Service Area 6	1,341	1,341	17,813	2,849	0	1.0	-1,508
Service Area 7	653	653	19,218	2,782	0	1.0	-2,129
Service Area 13	873	873	8,484	1,400	0	1.0	-527
Service Area JC	6,646	6,646	28,900	4,676	0	1.0	1,970
Southeast Region	6,668	6,668	60,405	10,120	0	1.0	-3,452
Service Area 17	1,583	1,583	21,423	3,973	0	1.0	-2,390
Service Area 18	936	936	7,410	1,186	0	1.0	-250
Service Area 19	1,312	1,312	5,183	916	0	1.0	396
Service Area 20	1,083	1,083	9,181	1,426	0	1.0	-343
Service Area 21	1,754	1,754	17,208	2,620	0	1.0	-866
Southwest Region	7,957	7,957	58,774	9,334	0	1.0	-1,377
Service Area 8	1,303	1,303	5,891	1,040	0	1.0	263
Service Area 9	1,934	1,934	24,071	3,604	0	1.0	-1,670
Service Area 10	4,720	4,720	28,811	4,690	0	1.0	30
Statewide Total	47,182	47,182	491,224	79,136	0	1.0	-31,954

Note: Data include adult and adolescent figures.

¹ Source: Missouri Division of Alcohol and Drug Abuse, Special Data Run, March 2003.

developed Missouri Automated Integration Model (AIM). The Missouri AIM, used in conjunction with the user's manual, provides the State of Missouri with a valuable and user-friendly tool to update need for treatment services at the State, regional, and service area levels as new data become available.

References

- Alexander, M.J., Craig, T.J., MacDonald, J., & Haugland, G. (1994). Dual diagnosis in a state psychiatric facility. American Journal of Addictions, 3, 314-324.
- American Psychiatric Association. (1987). Diagnostic and statistical manual of mental disorders (3rd ed., rev., DSM-III-R). Washington, DC: Author.
- American Psychiatric Association. (1994). Diagnostic and statistical manual of mental disorders (4th ed., DSM-IV). Washington, DC: Author.
- Bonito, A.J., Kuo, T.-M., & Bray, R.M. (1999a, June). Substance dependence or abuse and treatment needs among juvenile arrestees in Missouri: 1997 (final report prepared for the Missouri Department of Mental Health, Division of Alcohol and Drug Abuse, under Contract No. CSAT 270-95-0031; RTI/6490-060). Research Triangle Park, NC: Research Triangle Institute.
- Bonito, A.J., Kuo, T.-M., Moore, R.P., & Bray, R.M. (1999b, June). Substance dependence or abuse and treatment needs among the Missouri adult arrestee population: 1997 (final report prepared for the Missouri Department of Mental Health, Division of Alcohol and Drug Abuse, under Contract No. CSAT 270-95-0031; RTI/6490-060). Research Triangle Park, NC: Research Triangle Institute.
- Bray, R.M., & Marsden, M.E. (Eds.). (1999). Drug use in metropolitan American: Findings from the Washington, DC, metropolitan area drug study. Thousand Oaks, CA: Sage Publications.
- Candrilli, S., Weimer, B., & Rachal, V. (2003, September). Missouri Automated Integration Model User's Manual. (prepared by RTI and the Missouri Division of Alcohol and Drug Abuse, under CSAT Grant No. 5H79TI1229 /RTI Project No. 7765.000.100). Research Triangle Park, NC: RTI.
- Ebrahim, S.H., Luman, E.T., Floyd, R.L., Murphy, C.C., Bennett, E.M., & Boyle, C.A. (1998). Alcohol consumption by pregnant women in the United States during 1988-1995. Obstetrics and Gynecology, 92, 187-192.
- Fischer, P.J., Shapiro, S., Breakey, W.R., Anthony, J.C., & Kramer, M. (1986). Mental health and social characteristics of the homeless: A survey of mission users. American Journal of Public Health, 76, 516-524.
- Geller, S. (1995). Interpreting results from the family of studies. Presented at the National Technical Center Annual Workshop, State Needs Assessment and Resource Allocation Workshop, Washington, DC.

- Gerstein, D., & Harwood, H.J. (Eds.). (1990). Treating drug problems: Vol. 1: A study of the evolution, effectiveness, and financing of the public and private drug treatment systems. Washington, DC: National Academy Press.
- Koegel, P., Burnam, M.A., & Farr, R.K. (1988). The prevalence of specific psychiatric disorders among homeless individuals in the inner city of Los Angeles. Archives of General Psychiatry, 45, 1085-1092.
- Kroutil, L.A., Guess, L.L., Condelli, W.S., Bonito, A.J., Akin, D.R., Walker, J.A., & Bray, R.M. (1998, April). Substance use and need for treatment among the Missouri adult household population: 1997 (final report prepared for the Missouri Department of Mental Health, Division of Alcohol and Drug Abuse, under Contract No. CSAT 270-95-0031; RTI/6490-10). Research Triangle Park, NC: Research Triangle Institute.
- Missouri Department of Corrections. (2003). Publications/Statistics. Retrieved August 1, 2003 from <http://www.doc.missouri.gov/division/adult/address.htm>.
- Missouri Department of Health. (2001). Pregnancy Data. Retrieved September 12, 2003 from <http://www.health.state.mo.us/BobPreg/preg2.html>.
- National Institute on Drug Abuse. (1994). Prevalence of drug use in the D.C. metropolitan area institutionalized Populations: 1991. (Technical Report #4 under NIDA Contract No. 271-89-8340, Washington, DC, Metropolitan Area Drug Study).
- National Institute on Drug Abuse. (1996). National Pregnancy & Health Survey: Drug use among women delivering livebirths: 1992 (NIH Publication No. 96-3819). Rockville, MD: Author.
- O'neil, J., Krebs, C., Koetse, W., Forti, A., & Rachal, V. (2003, July). Substance abuse and need for treatment among Missouri jail inmates: 2001. (final report prepared by RTI and the Missouri Division of Alcohol and Drug Abuse, under CSAT Grant No. 5H79TI1229 /RTI Project No. 7765.000.200). Research Triangle Park, NC: RTI.
- Prevalence estimation techniques for drug-using populations. [Special issue.] (1993). Journal of Drug Issues, 23(2).
- Regier, D.A., Boyd, J.H., Burke, J.D., Jr., Rae, D.S., Myers, J.K., Kramer, M., Robins, L.N., George, L.K., Karno, M., & Locke, B.Z. (1988). One-month prevalence of mental disorders in the United States: Based on five Epidemiologic Catchment Area sites. Archives of General Psychiatry, 45, 977-986.
- Regier, D.A., Farmer, M.E., Rae, D.S., Locke, B.Z., Keith, S.J., Judd, L.L., & Goodwin, F.K. (1990). Comorbidity of mental disorders with alcohol and other drug abuse: Results from the Epidemiologic Catchment Area (ECA) Study. Journal of the American Medical Association, 264, 2511-2518.

- Robertson, M.J., Zlotnick, C., & Westerfelt, A. (1997). Drug use disorders and treatment contact among homeless adults in Alameda County, California. American Journal of Public Health, 87, 221-228.
- Sanchez, R., Kuo, J., Akin, D., Moore, R., & Bray, R. (1999, June). Integrating population estimates of substance abuse treatment need in Missouri (final report prepared by Research Triangle Institute and the Missouri Division of Alcohol and Drug Abuse, under Contract No. CSAT 270-95-0031/RTI Project NO. 6490). Research Triangle Park, NC: Research Triangle Institute.
- Soriano, F.I. (1995). Conducting needs assessments: A multidisciplinary approach. Thousand Oaks, CA: Sage Publications.
- Substance Abuse Mental Health Services Administration. (1997). National Household Survey on Drug Abuse: Population estimates 1996 (DHHS Publication No. SMA 97-3137). Rockville, MD: Author.
- U.S. Dept. of Justice, Federal Bureau of Investigation. Uniform Crime Reporting Program Data [United States]: Arrests by Age, Sex, and Race, 1998 [Computer file]. Compiled by the U.S. Dept. of Justice, Federal Bureau of Investigation. ICPSR ed. Ann Arbor, MI: Inter-university Consortium for Political and Social Research [producer and distributor], 2002.
- U.S. Dept. of Justice, Bureau of Justice Statistics. Census of State and Federal Adult Correctional Facilities, 1995 [Computer file]. Conducted by U.S. Dept. of Commerce, Bureau of the Census. ICPSR ed. Ann Arbor, MI: Inter-university Consortium for Political and Social Research [producer and distributor], 1998.
- U.S. Dept. of Justice, Bureau of Justice Statistics. Annual Survey of Jails: Jurisdiction-level Data, 1998 [Computer file]. Conducted by U.S. Dept. of Commerce, Bureau of the Census. ICPSR ed. Ann Arbor, MI: Inter-university Consortium for Political and Social Research [producer and distributor], 2001.
- Weimer, B., Green, J., & Rachal, V. (2003, September). Substance use and need for treatment among the Missouri household population: 2001/2002. (final report prepared by RTI and the Missouri Division of Alcohol and Drug Abuse, under CSAT Grant No. 5H79TI1229 /RTI Project No. 7765.000.100). Research Triangle Park, NC: RTI.
- Weisner, C., Schmidt, L., & Tam, T. (1995). Assessing bias in community-based prevalence estimates: Toward an unduplicated count of problem drinkers and drug users. Addiction, 90, 391-405.
- U.S. Census Bureau. (2001). United States Census 2000, Summary File 1 (SF1) 100-Percent Data. Retrieved June 13, 2003 from <http://factfinder.census.gov>.



Appendix A: Missouri AIM Output Tables

For a copy of the Missouri AIM output tables, please contact:

Missouri Department of Mental Health
Division of Alcohol and Drug Abuse

1706 E. Elm

P.O. Box 687

Jefferson City, MO 65102

Telephone: (573) 751-4942

TT: (573) 751-4942

Fax: (573) 751-7814

Web Site: <http://www.dmh.missouri.gov/ada/index.html>